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CLEAN UP THE WORLD: THINK GLOBALLY, ACT LOCALLY ... MAKE A DIFFERENCE

Elizabeth Dowdeswell

There is in Chinese calligraphy the character 'ji'. It means, at once, both crisis and opportunity. Of the many environmental crises the world is facing, that of urban and industrial waste is perhaps the most obvious and immediately offensive. It assails the nose, eyes and health of millions of people every minute of every day; it sends rampant diseases rampaging; it pollutes water; it turns air putrid; and it provides a visual squalor that depresses the soul, and deadens initiative and life itself. It is a daily affront to people, irrespective of income.

As a measure of the seriousness of the problem, according to UNEP's authoritative work *The World Environment 1972–92*, four million infants die every year from diarrhoeal diseases, largely as a result of contaminated food and water; a further 2500 million people suffer from illness linked to insufficient or contaminated water and lack of sanitation.

The figures for the OECD countries alone are staggering—420 million tonnes of municipal waste generated each year throughout the 1980s and 1430 million tonnes of industrial waste per year. Landfills are bulging, with fewer new sites every day, while the export of waste is finally becoming unacceptable—although it still goes on—whether to exploited developing countries or to equally exploited international waste repositories such as the North Sea.

Yet, as in 'ji', this crisis is an opportunity, because the first barrier to be overcome in ridding people's immediate environments of their waste is that of hopeless apathy, and there is nothing like a bit of success, a sense of achievement, to dispel apathy and replace it with hope. The Clean Up the World programme, featured on the cover of this edition of *Our Planet*, provides just that opportunity in the midst of crisis.

From its beginnings around Australia's Sydney Harbour, it has spread ineluctably throughout the rest of Australia and, in 1993, to the rest of the world. And success breeds success, for organizers at virtually every Clean Up location report an enthusiasm to do more in 1994.

But translating a one-day Clean Up into a clean environment takes years because, while it is conceivably possible to collect the rubbish of the past, it becomes practically impossible when every new day's plastic bags, cans, car bodies, industrial effluents and sewage are added to yesterday's. Nevertheless, the tonnes collected provide the sense of achievement necessary to continue.

Clean Up the World is a day-long global rubbish collection, yet despite the hundreds of thousands of tonnes of rubbish collected, its most significant achievement is intended to be, and in fact is, intangible—it is the feeling that individual action at the local level can make a difference to the quality of the environment in which people live. And, having raked out a rubbish bag from a stream one year or found a waste pipe emptying directly into a lake, people have been encouraged to try to ensure that by the following year the cause of the problem has been dealt with.

Faced with ignorance or the cynicism of those with vested interests who find waste reduction either irrelevant or too expensive, individuals will need to fight for the quality of their lives. With the very immediate success of their collective endeavour in Clean Up the World behind them, people have been encouraged to take one day a year of Clean Up the World to 365 days a year of cleaning up their own little bit of the world.

Elizabeth Dowdeswell
United Nations Under-Secretary General
and Executive Director, UNEP

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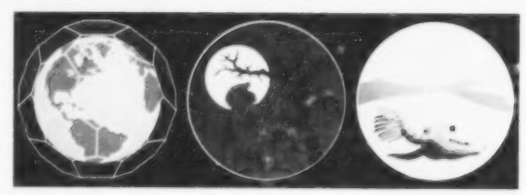

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CLEAN UP THE WORLD

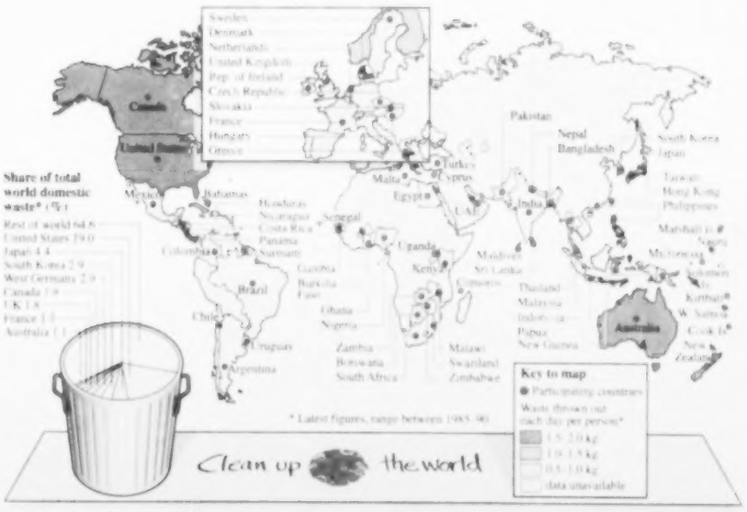
by SHANE CAVE and JACQUIE ASHTON

Hey, it might be a great big mess outside your door—if you're lucky enough to have a door, that is—but you don't have to just put up with it. At least, that's what several million people from 79 countries decided on 17–19 September 1993 during the UNEP-sponsored Clean Up the World campaign. From Korea to Malta, and Mauritius to Mexico, people got out and began cleaning up where they lived. It didn't matter whether it was rubbish at the bottom of Australia's Sydney Harbour, or from Malta's historic 16th-century Lower Fort St Elmo—thousands of tonnes of rubbish, mattresses, car bodies and paper bags were collected.

Clean Up the World was intended not just to shift rubbish from public places to rubbish dumps, but to begin changing attitudes and to encourage practical action. The experience of success in the simple task of collecting rubbish was supposed to make people more inclined to look at ways of keeping their environment clean, and eventually reducing the material that becomes rubbish in the first place. So what happened in the 1992 Clean Up?

It appears that Clean Up the World provided just the inspiration it was supposed to in many places around the world. 'It's really a "sweat and laughter" programme: families, including kids, learned how to clean their community and how to avoid dumping garbage in the future. People were surprised they collected so much garbage in only a morning, and they will think, "how about a week, a month, a year?"' said Mr Jay Fang from the Green Consumers Foundation, the Taiwan Organizing Committee.

Clean Up the World had been preparing for the 1993 push for well over a year, so that in some places there had already been a Clean Up in 1992—and success bred success. The fishing village of Kini on the Greek island of Syros has only 200 residents, yet there were 300 people involved in this year's Clean Up. 'They came from all over the island', reported organizer Trudy Boukas. 'I believe the event was so successful that next year the entire island may be involved. What a difference from last year, when I started with 23 school children, and a few residents and tourists. All the hard work paid off.'



Round-the-world yachtsman Ian Kiernan's campaign against ever-growing mounds of rubbish prompted the global Clean Up the World, which took place in September 1993.

How Clean Up the World was born

The idea for the Clean Up could hardly have had a more unlikely beginning. It was in the Sargasso Sea in the middle of the Atlantic Ocean that Australian yachtsman Ian Kiernan, a competitor in the 1986–87 solo round-the-world yacht race, sat appalled at the rubbish he saw floating past him, rubber flipflops, plastic drink bottles and wooden crates. The Sargasso Sea is a myth-laden part of the ocean which for Kiernan had been a special place since childhood story books. The rubbish spurred him to want to set things right, and it seemed that his own back yard was probably the best place to start. For Kiernan that meant Sydney Harbour.

The first Sydney Clean Up on 8 January 1989 pulled in 40 000 Sydneysiders who collected 5000 tonnes of rubbish, ranging from plastic beer can holders and cardboard boxes to car bodies. The scheme blossomed and, by 1990, had grown into Clean Up Australia Day. It involved 300 000 registered volunteers in 211 cities and towns. They collected 215 000 tonnes of rubbish. In 1991, the Clean Up had spread to 450 cities, and involved 320,000 volunteers.

Instead of just collecting the 1991 rubbish and using it as landfill, much of it was analysed to see what Australians were discarding. By finding out what was being thrown away the Clean Up organizers hoped it might be easier to prevent the rubbish becoming a problem in the first place. The options range from extending and modifying recycling schemes, to changing manufacturers' wasteful packaging practices. Since 1989, more than 1.5 million Australians have participated in community clean-up activities, and Clean Up Australia committees operate in more than 665 cities and towns.

Kiernan's goal wasn't just to clean things up, but also to make people feel that they didn't have to just accept the rubbish and pollution which degrades where they live. Kiernan believed that they could actually influence their own physical environment and, having experienced some success, might begin to change their own behaviour or push other people, companies and local authorities into changing their behaviour as well.

With the success of Clean Up Australia behind them, the campaign organizers approached UNEP about extending the idea and, for the past two years, UNEP and the Australian team have been cooperating in promoting the campaign around the world. UNEP's regional offices have been an important part of the network, which has been financially supported by the EGBAR Foundation (United States). EGBAR was established by Sunshine Makers Inc., manufacturers of the all-purpose, non-toxic cleaner Simple Green. The Foundation exists to stimulate people into cleaning up their local communities.

The Clean Up around the world

Clean Up operations took place right around the globe, involving people in the largest to the smallest countries in the developing and the developed world.

Argentina

Forty thousand people turned out in more than 200 sites. The rubbish was sorted into bags for recycling.

Canada

The operation mobilized 40 000 people and included more than 240 organizations—from cubs, guides and scouts, to local government staff, environmental groups and school children.

France

The French Clean Up operation involved 40 000 people covering about 200 sites, who collected 3000 tonnes of rubbish. In Aix-En-Provence, two helicopters airlifted the carcasses of 60 cars out of a deep valley, while the the Environmental Progress Society began collecting mercury batteries, and establish a collection bank to stop people dumping them in the future.

Japan

An estimated 10 000 people participated in Clean Up Japan. The areas worked on included 150 beaches, from Hokkaido to Okinawa. The organizers report that 70 percent of the material collected was plastic.

The Republic of Korea

Lead by the nation's oldest daily newspaper, *Chosun Ilbo*, Koreans collected 14 000 tons of rubbish throughout the country. The rubbish reports of participants are now being analysed to see what Koreans throw away. The operation had significant support from the Korean army and navy, who supplied about 400 000 people who worked on around 1300 sites, with the help of diver's boats, vehicles and helicopters.

Kenya

The Clean Up in the city that hosts UNEP's world headquarters was jointly organized by the Nairobi City Council and UNEP, and followed several other similar Clean Up Nairobi campaigns. It involved 6000 participants, who collected 450 tonnes of rubbish from 20 designated sites.

Malta

More than 3000 people from some 140 supporting organizations took part in Clean Ups over the whole island. Many truck loads of rubbish were removed from the landmark 16th-century Lower Fort St Elmo site. Stimulated by the Clean Up, the Valetta Rehabilitation group in charge of the site has announced plans to stop the dropping of

Ian Kiernan, Chairman of Clean Up the World, takes part in a local clean-up on Clontarf Beach, Sydney Harbour, where Clean Up Australia began.

The Olympic connection

World press coverage last September on the hosting of the 2000 Olympics made Sydney and Beijing look unlikely allies. The two cities were clear favourites, with support tied between them as the 23 September decision date neared. But any animosity was thrown out of the window when it came to cleaning up rubbish. Clean Up the World ended just three days before the International Olympic Committee's decision was announced. Yet just before the Clean Up, Beijing joined the Sydney-based campaign, targeting Beijing and Shanghai for particular attention, with further operations in another 33 cities. The government of China supplied people, and organizational and financial support, for the Clean Up, which had 112 different community sites and involved several million people.

litter and rubbish around the site. The country as a whole is preparing legislation to provide long-term solutions to the waste problem. In particular, the legislation will involve development of a strategy on solid waste disposal.

Mexico

As befits the world's largest city, Mexico City's clean up was a large-scale event, with 60 000 participants joining the operation, backed up by radio and television networks which kept running updates on progress during the Clean Up. The operation produced well over 20 tonnes of rubbish, from tyres, mattresses, broken furniture and stoves to paint cans, refrigerators and the usual range of empty and broken bottles, and plastic bags. In Xochimilco, the Clean Up saw local health authorities notified of a clandestine chincilla farm, where the owner skins the animals for their valuable pelt then simply throws the raw animal carcass onto the street.

In Guanajuato, the Clean Up focused on public places such as city parks, roads and streams, but the organizers say that future Clean Ups will address chemical pollution of waterways. As in the nation's capital, there was extensive support from radio and television. The local department of public services, which collects city rubbish, has decided to begin a rubbish separation programme to enable better recycling.

Organizers in both Mexico City and Guanajuato report real determination and enthusiasm for continuing the programme in 1994, and Mexico City organizer Kathy Loretta says they are already gearing up for next year.

Taiwan

The Clean Up was extended from one weekend to a whole month. Just over the Clean Up the World weekend 1000 dumped cars were recovered, while 12 000 employees of the Amway Corporation collected more than 32 tonnes of garbage from 17 locations.

Thailand

About 500 000 people took part in the Clean Up, according to Khunying Sphonpanich of the Thai Environmental and Community Development Association. They covered 8500 sites, with the highlight being the 22 temples targeted on Rattanakosin Island, where 3500 students did the work. Throughout Thailand, 134 organizations participated in the Clean Up.

How to help clean up your world

For those interested in starting a Clean Up, there is a *How to do it* kit with advice on:

- the aims of the operation;
- factors to consider when planning and organizing;
- choice of sites;
- safety recommendations;
- types of services likely to be required; and
- guidelines on stimulating community involvement and media coverage.

This advice includes experiences of people from all around the world, and is provided as a useful first step for those communities wanting to organize their own Clean Up.

For more information, write to:
Clean Up the World
123 Harris Street
Pyrmont
Sydney
NSW 2009
Australia
or:
Information and Public Affairs
UNEP
PO Box 30552
Nairobi
Kenya.

Vanuatu

This tiny Pacific island nation, off Australia's north-eastern coast, enthusiastically joined in the Clean Up. It was launched with a parade through the capital, Port Vila, and ended with 75 site supervisors and more than 2000 volunteers throughout the islands collecting 6500 bags of rubbish.

Clean Up in Port Vila, Vanuatu, off the north-eastern coast of Australia.

CONVENTION UPDATE

THE CLIMATE CHANGE CONVENTION

by MICHAEL WILLIAMS

The United Nations Framework Convention on Climate Change was signed by more than 150 governments at the June 1992 Rio 'Earth Summit'. It had been negotiated over five sessions in the lead up to Rio.

The convention will enter into force on 21 March 1994, which is 90 days after the 50th country became a party by ratifying its signature. Just over one year later, on 28 March–7 April 1995, the Conference of the Parties (COP) will hold its first session in Berlin to start implementing the treaty.

But a great deal of work must be completed before then. While the negotiations themselves are finished and the treaty text is agreed, many practical details remain undefined. To overcome these, the Intergovernmental Negotiating Committee (INC), which drafted the convention, continues to meet on a regular basis. It will hold its ninth session on 7–18 February 1994 in Geneva, followed by two more sessions in August 1994 and February 1995.

These meetings are necessary because the convention makes heavy demands on the first session of the COP. Unless key procedures and arrangements are established in advance, the COP will not produce the achievements expected of it.

A key item on the agenda for the COP's first session is the evaluation of 'national communications' from developed countries about their efforts to implement the convention. The INC needs to set guidelines for the content and format of these communications, which Parties from the OECD, and from Central and Eastern Europe, will submit by late 1994.

An important element in these communications will be information on the progress being made in limiting greenhouse gas emissions. Most developed countries have stated that they aim to bring emissions levels of these gases back to 1990 levels by the year 2000. But is this adequate? To enable the COP's first session to review this question (as the convention says it must), the INC must agree on procedures for making this critical, but possibly contentious, assessment.

An agreed methodology for making inventories (listing and quantifying) of greenhouse gas emissions and 'sinks' (places where greenhouse gases are absorbed) is also essential if the communications from different countries are to be comparable and meaningful. This is a highly technical issue, but it must be dealt with in the coming months.

It should come as no surprise that financial matters are central to the current discussions. For the time being, the Global Environment Facility is responsible for distributing funds to developing countries for projects and activities related to the convention. The COP must decide on the permanent financial arrangements. Many other specific issues related to finance must also be finalized before the Berlin meeting.

Climate convention countdown

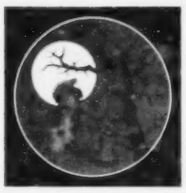
(ratifications through 5 January 1994)

1 Mauritius (4.9.92)
2 Seychelles (22.9.92)
3 Marshall Islands (8.10.92)
4 United States (15.10.92)
5 Zimbabwe (3.11.92)
6 Maldives (9.11.92)
7 Monaco (24.11.92)
8 Canada (4.12.92)
9 Australia (30.12.92)
10 China (5.1.93)
11 Saint Kitts and Nevis (7.1.93)
12 Antigua and Barbuda (2.2.93)
13 Ecuador (23.2.93)
14 Fiji (25.2.93)
15 Mexico (11.3.93)
16 Papua New Guinea (16.3.93)
17 Vanuatu (25.3.93)
18 Cook Islands (20.4.93)
19 Guinea (7.5.93)
20 Armenia (14.5.93)
21 Japan (28.5.93)
22 Zambia (28.5.93)
23 Peru (7.6.93)
24 Algeria (9.6.93)
25 Saint Lucia (14.6.93)
26 Iceland (16.6.93)
27 Uzbekistan* (20.6.93)
28 Dominica* (21.6.93)
29 Sweden (23.6.93)
30 Norway (9.7.93)
31 Tunisia (15.7.93)
32 Burkina Faso (2.9.93)
33 Uganda (8.9.93)
34 New Zealand (16.9.93)
35 Mongolia (30.9.93)
36 Czech Republic (7.10.93)
37 Tuvalu (26.10.93)
38 India (1.11.93)
39 Nauru (11.11.93)
40 Jordan (12.11.93)
41 Micronesia (18.11.93)
42 Sudan (19.11.93)
43 Sri Lanka (23.11.93)
44 United Kingdom (8.12.93)
45 Germany (9.12.93)
46 Switzerland (10.12.93)
47 Republic of Korea (14.12.93)
48 The Netherlands (20.12.93)
49 Denmark (21.12.93)
50 Portugal (21.12.93)
51 Spain (21.12.93)
52 E.U. (formerly EEC) (21.12.93)
53 Cuba (5.1.94)

* Accession

THE CONVENTION ON BIOLOGICAL DIVERSITY

by SHANE CAVE



The Convention on Biological Diversity was negotiated in the lead up to the 1992 UN Conference on Environment and Development (UNCED). The final text of the treaty was agreed to by Governmental negotiators at UNEP headquarters in Nairobi, Kenya, on 22 May 1992, and presented for signature in Rio de Janeiro during UNCED. It has since been signed by 165 nations, plus the European Community.

To enter into force, the Convention then required ratification by 30 countries, and Mongolia's ratification on 30 September 1993 meant that it became effective on 29 December 1993. Ratification is the legislative acceptance of a convention by a signatory country.

During 1993 an interim secretariat was established and work was prepared for the first meeting held under the convention. This was the Intergovernmental Committee on the Convention on Biological Diversity, which was held on 11–15 October in Geneva.

At that meeting, a wide range of technical matters were considered, covering conservation and sustainable use, and the range of important national activities to be undertaken to reduce the loss of biological diversity. The meeting also considered tasks to be undertaken by the convention's interim secretariat before the first Conference of the Parties, which is proposed from 28 November to 9 December 1994. The meeting added to the secretariat's preparatory work the question of rights and access to collections of genetic material, such as gene and seed banks, and the question of the rights of farmers and local communities regarding use of, and access to, genetic material.

At the time of going to print, an open intergovernmental committee of scientific experts on the convention was scheduled to be held in Mexico—the timetable proposed to run from 15 to 19 March 1994—and another Intergovernmental Committee on the Convention was proposed from 9–20 May 1994, to be held in Nairobi.

Convention on Biological Diversity (ratifications through 15 October 1993)

1 Mauritius (4.9.92)
2 Seychelles (22.9.92)
3 Marshall Islands (8.10.92)
4 Maldives (9.11.92)
5 Monaco (20.11.92)
6 Canada (4.12.92)
7 China (5.1.93)
8 Saint Kitts and Nevis (7.1.93)
9 Ecuador (23.2.93)
10 Fiji (25.2.93)
11 Antigua and Barbuda (9.3.93)
12 Mexico (11.3.93)
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14 Vanuatu (25.3.93)
15 Cook Islands (20.4.93)
16 Guinea (7.5.93)
17 Armenia (14.5.93)
18 Japan (28.5.93)
19 Zambia (28.5.93)
20 Peru (7.6.93)
21 Australia (18.6.93)
22 Norway (9.7.93)
23 Tunisia (15.7.93)
24 Saint Lucia[2] (28.7.93)
25 Bahamas (2.9.93)
26 Burkina Faso (2.9.93)
27 Belarus (8.9.93)
28 Uganda (8.9.93)
29 New Zealand (16.9.93)
30 Mongolia (30.9.93)
31 Philippines (8.10.93)

[1] Acceptance of the Convention
[2] Accession to the Convention

The issue

The Convention on Biological Diversity grew out of a number of concerns, starting with the all too obvious destruction of habitats, and extending to the consequential extinction of species and the vulnerability of key agricultural crops.

One catalyst to the drafting of the convention lay in the resentment of many countries regarding the exploitation of genetic resources, particularly plant species, which came from their country but for which they received no benefit; in some cases, where the plants were genetically modified, the countries were even charged for the use of the products. This meant that there was no recognition of the value of the habitats which had produced these valuable species, although preserving these habitats is an expensive affair. As these habitats have become threatened, so worry has grown over the narrowing of the gene pool of commercialized species. Propagation of the most productive species of potatoes, for example, means that if a disease hits those few species, huge damage is caused, despite the fact that there may be wild or little-used varieties of potato resistant to the disease. Preserving habitats for unknown future benefits is also costly.

A more recent concern, which many expect the convention to address, is the possible damage from the release of genetically engineered plants and animals into natural environments. There are many examples of damage from the transfer of naturally occurring species to foreign environments, such as the clogging of African waterways with the South American water hyacinth, and the erosion of Australia caused by the introduction of rabbits. It is therefore vital that organisms created in laboratories must not be released until it is clear they pose no threat to existing species and ecosystems.

The convention was established to address these issues and provide a mechanism to spread the costs of confronting them.

INTERNATIONAL CONVENTION TO COMBAT DESERTIFICATION

The proposed convention to combat desertification, currently being negotiated by government delegates, is a product of the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992. The idea for the convention predated UNCED, and had been discussed in the lead up to the Rio meeting, but it was only in Rio that the UN General Assembly was formally asked to set up an intergovernmental negotiating committee to get agreement on a convention. Later in 1992, the General Assembly responded to the request from Rio by calling for the Intergovernmental Negotiating Committee to be established. An organizing committee meeting was held in January 1993, and officers elected and rules adopted, with working groups and a schedule of meeting established.

The first meeting

This was held in Nairobi, Kenya from 24 May to 3 June 1993. Consensus emerged on a number of items at this meeting, which will be reflected in the detail of the convention as it emerges throughout subsequent negotiations. It was agreed that there was a need for a bottom-up approach that reinforces local participation and action, as well as the role of non-governmental organizations and women, and which also recognizes the importance of indigenous technologies and practices. Consensus also emerged on the need for better research, improved data collection and analysis, capacity building and the transfer of appropriate technologies.

The second meeting

Negotiations resumed in Geneva on 13 September 1993. With the formation of two working groups, this meeting saw more detail being discussed, and the emergence of the skeleton of the convention in the topics being considered by each group.

Working Group I was given responsibility for the sections of the preamble dealing with: principles; objectives; structure and nature of commitments; national and regional action programmes; capacity building and the raising of public awareness; financial resources and mechanisms; and coordination and cooperation.

Working Group II was given responsibility to deal with: definitions; technology transfer and cooperation; research and development information collection; analysis and exchange; institutions; regional instruments; and procedures and final clauses.

At the second meeting, much of the work was still in its infancy, but there were some areas where a consensus emerged. For example, there was agreement that the preamble to the convention should include a reference to the handling of desertification by the UN system, and also refer to the link between desertification and other problems, some of which would be demographic factors, refugees, poverty and trade flows, and the importance of community involvement.

Particular emphasis was placed on the history of raising funds to deal with the problem of desertification. The Egyptian delegation cited the lessons to be learnt from the funding of the 1977 Plan of Action to combat desertification. After 10 years, a special account established by the General Assembly had raised only US$236 000. Then, a special group called DESCON was established to raise money for desertification control measures, but after eight meetings it ceased to exist. In 1981, UNEP published a report on how to raise money, which the Egyptian delegation argued was still valid, but they pointed out that it had never been implemented.

FAO

THE ENVIRONMENT AND TRADE

Negotiation of international trade rules throughout the 1990s have made headline news. SCOTT VAUGHAN looks at the likely headlines of the next trade round.

Immediately following the historic completion of the GATT Uruguay Round in mid-December 1993, trade and environmental experts began looking at the shape of the future agenda. Looming large on the policy horizon is how to integrate trade and environment concerns. Indeed, the 'greening' of trade policies promises to be one of the most complex and politically charged issues to be tackled in the post-UNCED follow-up.

Progress to integrate environmental measures into the rules and goals of international trade have been intensifying in recent years. At issue is how to strike a difficult balance between the drive for greater trade liberalization—often entailing the dismantling of domestic regulations—with the urgent need to counter accelerating environmental degradation, through regulatory and other measures.

Although the trade and environment debate is moving simultaneously in many directions, at the heart of the debate are two core issues. First, what are the effects of environmental regulations on trade policy? Here, issues revolve around the compatibility of actions such as trade bans under CITES and GATT Articles which disallow trade bans. And secondly, what are the effects of trade liberalization on the environment?

Of the two, the second is the more problematic. If trade liberalization leads to increased national economic growth, what impact will this have on the environment? Certainly, the guiding principle of sustainable development—as spelt out in the Rio Declaration and Agenda 21—tells us that core economic policies, including trade, and environmental objectives must be compatible. In this vein, some argue that increased global trade is good for the environment. The argument goes that increased market access boosts domestic capacity and demand and, hence, GDP. As wealth increases, people have improved education levels and perceive the need for a better environment. With more wealth and education, so they have more political leverage over their environment. They are also better able to afford things which improve their environment—for example, as they become better off—so they can improve their sanitation.

A flaw in current sustainability assumptions is a potential conflict with some basic laws of physics. The global biosphere is—as Herman Daly, senior economist at the World Bank, and others point out—a finite system, ultimately governed by physical laws of entropy. While economists laud the necessity of an annual and perpetual percent growth in GDP, infinite economic expansion—in all cases—is not environmentally feasible. That much we know from scientific warnings related to the build-up of greenhouse gases, or in the links between export-intensive cash crops and accelerating land degradation, already affecting 900 million people in the developing world.

The trade-environment debate has largely concentrated on complex issues related to compatibility between environmental and trade regulations, on the assumption that trade liberalization is a desirable policy goal.

An important example in this critical area is the North America Free Trade Agreement—NAFTA—which was passed in the US House of Representatives in late 1993, after a protracted debate. NAFTA, which creates a free-trade region for Mexico, the United States and Canada, is one of the first multilateral trade agreements which makes explicit reference to environmental and sustainability goals. By con-

trast, a sore point to many environmentalists is that GATT makes no reference to environmental goals in its Articles, suggesting to many that the environment is but an exception, or policy anomaly, to trade.

Under the original NAFTA draft, completed in 1992, specific, binding clauses were negotiated to give teeth to green objectives. For instance, hard-sought-after references to 'pollution havens' were included, so that NAFTA rules explicitly discourage industry investment, or industry relocation, propelled by lower environmental regulatory compliance costs. NAFTA also states that national environmental standards cannot be lowered without prior consultation among the Parties, and that the burden of proof should rest with the country seeking a lower standard.

From a legal perspective, a major breakthrough, from the perspective of current GATT discussions, is the inclusion of a 'trumping' clause in NAFTA, whereby priority is given to specified environmental accords—such as CITES, the Montreal Protocol and the Basel Convention—over the provisions of NAFTA.

Upon assuming office in January 1993, the new Clinton Administration moved to strengthen the environmental provisions even further, and opened negotiations for special 'side' accords, involving strengthened trilateral co-operation related to the environment and labour standards. Under NAFTA, a North American trilateral commission for the environment would be established to build technical cooperation among the parties. Fines for non-compliance with environmental provisions were set at US$20 million. And, in a related move, US$600 million was allocated for the environmental clean-up of the Mexico-US border area, of which Washington pledged almost US$200 million.

The successful completion of NAFTA, with the inclusion of important environmental considerations, represents for many a first step in the more complex task of greening trade policies at the multilateral level.

Accordingly, focus is now shifting to a work plan for the post-Uruguay Round. For almost two years, a series of expert meetings in GATT have identified some of the issues that may be addressed. GATT's trade and environment committee of government officials has been studying three issues:

- the use of trade measures in multilateral environmental agreements, and their possible incompatibility with GATT Articles (GATT rules disallow countries from using trade bans or quantitive restrictions on exports, yet these are key provisions of CITES, the Montreal Protocol and Basel Convention);
- the 'transparency' of national environmental regulations; and
- the trade effects of so-called eco-packaging and eco-labelling.

Many believe that in addressing these issues, a sharper understanding is needed in determining whether some actions undertaken—particularly in developed countries—are trade protectionist actions merely dressed up in green clothing.

... a sore point to many environmentalists is that GATT makes no reference to environmental goals in its Articles ...

... defenders of GATT argue that trade and environmental objectives can be, as Agenda 21 noted, 'mutually supportive' ...

There is, however, little doubt that if a 'Green Round' is either formally launched, or informally addressed in other ways, the current three-point agenda will be enlarged. At the same time, many question the competence of an international trade organization to address environmental issues in the first place.

Doubts about GATT's green credentials have come to public attention only recently—in fact, in August 1991, following the findings of the so-called 'Tuna-Dolphin' dispute panel. The main ingredients of this case are complicated but, essentially, public concern about the fate of thousands of marine dolphins killed each year during the catching of tuna prompted the United States to impose restrictions on the import of tuna caught in purse-seine nets which also killed dolphins.

Mexico, as a country which exported tuna products to the US market, objected to the US position, stating that the extension of US domestic laws such as the Marine Mammal Protection Act covering regulations for how fishermen should fish had no bearing on Mexico or any other country. The complaint went to GATT for arbitration.

Since GATT Articles are concerned primarily with standards related to a product which is traded (in this case, tuna) and not with the production process from which the product is made (in this case, purse-seine tuna nets), the GATT panel suggested that the US position to be incompatible from a trade regulation perspective, since the underlying US legislation—the 1972 US Marine Mammal Protection Act—might represent an attempt to impose extra-territorial measures on foreign production methods.

For detractors of GATT, the ruling was evidence of the inability, or inflexibility, of trade laws to accommodate the growing need to strengthen environmental protection, by any means, including regulatory intervention, outright bans, cartels and so on. Clearly, while the rules of trade can be reformed to reflect changing social, economic and other conditions, the rules of nature cannot. And science continues to issue dire warnings about the downward spi-

Environment and Economics unit

Following the May 1993 decision by the UNEP Governing Council, the UNEP Secretariat has identified environment and trade as a priority area, under the newly established Environment and Economics unit. UNEP's work in this area will include:

- the publication of a Monograph Series, dealing with specific legal, economic and scientific assessment issues related to environment and trade (publications are free);
- support of four country-case studies, assessing specific links between trade and environmental impacts; and
- support, in cooperation with UNCTAD, of a comprehensive training programme on environment and trade.

For more information, write to:

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ral of the global environment. Since October 1993, there have been reports of record lows in the Antarctic ozone layer, and public outrage over the dumping of nuclear wastes into the oceans and groundwater contamination.

On the other hand, defenders of GATT argue that trade and environmental objectives can be, as Agenda 21 noted, 'mutually supportive', for a number of reasons. GATT, for example, reasoned that a bilateral environmental law aimed at protecting dolphins would be far more effective and focused than a 'shot-gun' approach of changing all trade rules. Global trade flows are currently measured at a staggering US$3 trillion per year, and freeing up trade would obviously add to that, so even a small percentage increase stands to have a vast impact on both economies and the environment. The impact of environmental regulations on trade are potentially of a similar order. Trade, however, remains the principal engine of economic development and the best hope for lower consumption countries to increase per capita incomes, to generate revenues necessary to combat poverty and famine, and to build domestic environmental protection.

Aside from the often arcane legal details for which trade negotiators are notoriously enthusiastic, the general goals of trade and environment policies are seen by many as complementary. For example, both trade and environmental advocates aim at improving human welfare through a more efficient allocation of resources, both natural and human-made. Both trade and environmental goals agree on the need to internalize various so-called externalities—from direct to ecological subsidies. Externalities exist where a producer incurs a cost which someone else has to pay. For example, a factory which dumps its waste in a local stream for free sells its products without building in the cost of cleaning up the stream. The local authority which cleans up the stream ends up subsidizing the factory. A main objective of GATT Articles is to prevent governments from distorting prices through subsidies, tariffs and non-tariff barriers.

And both environmental and trade advocates argue that the best hope for our future lies in building more open, fair and accessible world markets, so as to enable lower-consumption countries to compete fairly. To this end, developing countries can expect to benefit by the tune of US$100 billion per year from a successful completion of the Uruguay Round of GATT talks.

Despite a jockeying for position in the post-Uruguay Round world, the dichotomy of environment versus trade is largely false, although a great deal more empirical analysis is needed to fully understand the environmental effects of free trade. What is now needed is a careful delineation of specific areas where policy comparability exists. One common area is the 'polluter pays principle'—for too long, according to many, still only a principle.

The road towards internalizing environmental costs into product prices, however long, is a straight one. But pressures on both trade and environmental policies are making progress more difficult today than perhaps in any time in 20 years. Deterioration of economic stability in many countries—North and South—is creating enormous social and political pressures, threatening trade liberalization and environmental protection. For example, according to the latest International Monetary Fund Economic Outlook Report, the economic plight of many of the world's poorest countries continues to deepen—so that real per capita incomes continue to fall below levels of two decades ago—while unemployment in industrialized countries is slated to exceed 32 million by the end of 1993, up by nine million from just three years ago.

High unemployment and economic stagnation is an increasing reality for many countries. For many analysts, this suggests not so much a stubborn recessionary cycle as a fundamental structural shift in the global economy. The trade-offs we make in the years ahead, in building policies that work towards sustainable development, are of the utmost importance.

PUBLICATIONS

World without end: economics, environment and sustainable development
Pearce, David W. and Warford, Jeremy J.
Published for the World Bank by Oxford University Press, New York, 1993

The desire for ever-better material conditions is an unavoidable characteristic of the human psyche, yet there are finite limits to the resources available for us to use. *World without end* is a serious and scholarly work to show how it is both possible and necessary to reconcile these apparently conflicting tenets.

If—and it is a very big if—the developed world represents an economic model for the rest of the world, then the lessons of the early 1990s have been that the ideologically driven policies of the 1980s have been spurned by voters keen on rather more pragmatism. Among the largest OECD countries, the rejection of Margaret Thatcher and George Bush for their more pragmatic successors indicates that voters want less dogma and more wrestling with the practicalities of day-to-day living—also demonstrated by the emphatic thumbs-down to further economic reform by the OECD's smallest and most radically changing member, New Zealand.

Pearce and Warford strike a similar tone on the need to reconcile people's material aspirations with the capacity of the environment to supply resources and absorb waste. They write, in the book's overview: 'If poverty is to be reduced and the standard of living of the average person improved, economic growth must remain a legitimate objective of national governments and the world community. But most people are now painfully aware that pursuing economic growth without paying adequate attention to the environment—both built and natural—is unlikely to be sustainable; it cannot last. The issue, which is also the premise of this book, is how, not whether, to grow.'

Their argument is that consumption by human societies is inevitable; even static consumption by definition uses resources, and may do so unsustainably. This means that campaigning against growth is not sufficient in itself to protect the environment.

The book's primary focus is on the developing world, where the environmental economic links are most painfully obvious. For poor countries, desperate for economic growth, the economic losses from environmental degradation are excruciating, especially against the backdrop of rapid population growth where even static economies mean collapsing per capita incomes. Poor water quality means disease, deforestation and overused land, all of which lead to soil and fertility loss, with practical impacts on people.

The environmental problems which are of most concern are almost all the consequences of economic activities. To be effective, environmental protection must recognize economic processes. Pearce and Warford see virtue in both regulatory control and manipulation of market forces but, across the board, point to the role of governments as paramount in environmental protection. For example, government agricultural subsidies all too often encourage monocultures or the use of fragile marginal lands, while lax or non-existent enforcement of existing regulations encourages pollution of airways and waterways by industries which bear none of the health or clean-up costs.

The book is a detailed exposition of the ways in which economic policies must accommodate environmental considerations, '... without surrendering environmental quality to free market forces, which alone do not reflect environmental values'. The authors argue that markets must instead be used to reflect environmental costs and values.

World without end is a lengthy mix of theory and substantiating case studies, the writing clear but sometimes, of necessity, dense. This does not, however, obscure the main messages of their book, which are that most environmental problems stem from the economic activities of humans, and that there are neither single causes nor simple solutions to these. The book is not intended to be light reading, but to be of practical guidance to those responsible for governmental economic and environmental policies.

David Pearce is Professor of Environmental Economics and Director of the Centre for Social and Economic Research on the Global Environment, University College, London. Jeremy Warford was, at the time of writing the book, a senior adviser in the Environment Department of the World Bank.

Toward improved accounting for the environment
Edited by Ernst Lutz, World Bank, Washington, DC, 1993

National statistics and calculations of economic activity generally fail to reflect the environmental damage wrought by the day-to-day business of individuals and corporations. To redirect conventional measures of economic activity the World Bank, UNEP and the UN Statistical Agency (UNSTAT) have been looking at how to reflect the use of natural resources in statements of national accounts. The measures can be of resources consumed, as in minerals or forests, or resources used to absorb waste, such as the atmosphere, lakes and oceans, and the land itself. Whatever the case, the goal is to include these factors in the traditional calculation of Gross National /Domestic Product. This book, a collaborative effort between the World Bank and UNSTAT, contains theoretical papers and case studies of applications covering both developed and developing countries.

OPINION

THE CONVENTION ON BIOLOGICAL DIVERSITY: FOUR YEARS AFTER THE RIO EARTH SUMMIT

Signatory states take it seriously

Of the world's 160 countries, all of them have signed the Convention on Biological Diversity and 120 have ratified it, making it the most widely supported international agreement of all time. A measure of the support it has is the speed with which it came into force. 30 signatories ratified it by the end of September 1993, only 15 months after it was opened for signature at the Rio Earth Summit in June 1992.

Today, in June 1996, 100 countries have already developed and adopted national biodiversity conservation strategies, and have set up a National Biodiversity Committee to oversee implementation of their strategy, with all major stakeholders in biological resource management being represented on that Committee. Most of these countries have also established a Biodiversity Office as a senior planning and advisory agency of central government. Governments now see their role as setting the policy and regulatory environment, allowing citizens to fix the problems locally.

Advice coming from traditional and scientific sources

All states that are party to the convention routinely send a team of experts to Intergovernmental Meetings of the Advisory Committee of Relevant Experts (ACORE). The expertise of the participants ranges from ecological science, sustainable agriculture and indigenous knowledge, to technology transfer, resource economics, social science, land rehabilitation and impact assessment.

This Advisory Committee has become the powerhouse of the convention, linking tens of thousands of experts, from professors in the remotest of academic institutions to elders in the remotest of local communities.

ACORE has also developed comprehensive criteria and guidelines for funding allocation decisions not only by the Conference of the Parties to the Convention, but also for the guidance of other national and international funding programmes with an interest in biodiversity conservation and sustainable use of biological resources—such as the Global Environment Facility.

Governments have come to realize that the ideas and energy needed to halt the destruction of biological diversity and to avoid unsustainable use already exist within their own communities. Once people realized they were not isolated, all they needed was recognition and support for their ideas and efforts. With funds beginning to come from the convention, people began to feel less pressure to make short-term profit, a pressure which afflicts both public interest scientists and traditional communities.

Importantly, holders of traditional knowledge and representatives of traditional farming communities are now acknowledged and accepted as having just as much to contribute as "scientific" experts, and they now generate thousands of projects ideas to be implemented under the convention.

All these ACORE activities are based on feedback from a series of regional and specialist workshops. They allow countries to establish their own funding priorities and strategies for delivering the funds needed to implement the convention.

ACORE also coordinates an extensive training programme aimed at developing the capacity of developing countries. This will include developing the ability to:

- assess and conserve their own biodiversity;
- develop locally controlled agriculture which requires low external input;
- use advanced technology for extraction and commercialization of active chemicals from their native flora; and
- develop educational curricula and teacher training.

Before the convention came into effect, many developing countries had neither a detailed knowledge of their biological resources, nor much of the expertise and equipment needed to find out. Education and training programmes, development and servicing of laboratories and libraries, new laws and regulation—all these were needed before developing countries any fair chance of benefiting from the exploitation of those resources. Before the convention, foreign drug and seed companies had the field to themselves.

Funding decision controlled by the Conference of the Parties

The World Bank's Global Environment Facility, which operated during 1994 as the institution controlling the financial mechanism of the convention, was rejected as the permanent financial institution. The Conference of the Parties has taken that power to itself, and has established the Global Biodiversity Conservation Fund (GBCF). The criteria it uses (see box page 15) guide other international and national institutions. It also oversees the transfer of the technology needed by countries to meet their obligations under the convention. The GEF was rejected for two main reasons.

First, it could not shake off its top-down approach, insisting on retaining control of project development and approval, whereas the convention wanted an emphasis on self-help by local communities in project development and wanted control over approvals of such projects.

Secondly, donor governments have realized that citizens are willing to contribute directly to the aims of the convention and have cut their multilateral aid proportionately. Citizens groups in all OECD countries already have active fund-raising campaigns donating directly to the GBCF.

Progressive producers of retail goods have voluntarily put levies on products, with funds collected also going directly into this fund. Products levied include bread, beer and beef, as well as tins of tuna and tomatoes. The more progressive OECD countries have legislated to provide for "superfund" levies on products derived from biological resources, to be paid into the fund on the understanding that any such transfers can be deducted from their compulsory contributions as Contracting Parties to the Convention.

Biodiversity fora spread the word

A forum is held before meetings of the Parties, and before meetings of other institutions which recognize and work within the convention. These fora have become the principal network in spreading information about progress in stemming the tide of species extinction, soil erosion and water degradation. They are held before meetings of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Whaling Commission (IWC), FAO's Commission on Plant Genetic Resources (CPGR), and the Conventions on Small Island States and Desertification. These fora report on how the Convention on Biological Diversity helps the work of the meeting in question.

For example, after negotiations with FAO, the convention has taken on responsibility for the *in-situ* conservation of plants and animals useful for food and agriculture.

ALISTAIR GRAHAM suggests what the convention might be in June 1996.

How to obtain funds through the convention

Some of the criteria required for projects to qualify for funding under the biodiversity convention follow.

- All projects to be:
  - supported by national governments; and
  - recommended for funding by ACORE.
- Projects developed by local communities and community organizations should:
  - conserve soil and water values, and maintain native vegetation cover;
  - rehabilitate degraded landscapes, and endangered species and communities;
  - modify land use systems under their control to ensure sustainability;
  - document species and varieties of plants and animals which the community traditionally uses and conserves; and
  - identify external pressures—both physical and political—which hinder their efforts to conserve and sustainably use resources under their control.
- Projects developed by governments at all levels (local, regional and national) should:
  - identify and disseminate appropriate technologies for both primary production and manufacturing;
  - monitor biological resource use to ensure sustainability—especially soil, water and fisheries;
  - reduce pollution, especially soil and water contamination;
  - reform land tenure and recognize community rights to natural resources—including 'land rights'; and
  - incorporate natural resource accounting into their budgeting and accounting systems.
- Projects designed to meet obligations incurred under other international agreements can be funded under the convention, for example:
  - CITES—rehabilitation of endangered species listed on Appendices I and II;
  - climate change—maintenance of native vegetation;
  - regional fisheries agreements which avoid the accidental killing of sea mammals and birds;
  - GATT—sustainability of production systems and reduced product contamination; and
  - FAO—*in-situ* conservation of plant and animal genetic resources for food and agriculture.

In-situ refers to the habitat in which the species grew wild or was used in traditional agriculture. FAO and its Commission on Plant Genetic Resources continue with the coordinating *ex-situ* conservation; this refers to the maintenance of gene banks, and seed and plant collections. The Convention on Biological Diversity routinely reports back to FAO on the state of *in-situ* conservation of resources relevant to its work.

Users start 'paying the rent' to countries of origin for access to biological resources

In the most significant development of all, with the exception of the United States, all states recognize each others' sovereign rights over biological resources within their jurisdiction. This means that countries that preserve the habitats which produce species now used in agriculture receive a rental payment from countries which use and grow these particular species. This rent is a recognition by user countries of the value in preserving the habitats where their agriculturally important species evolved. This recognizes the importance of preserving the genetic diversity of species where, for example, resistant strains evolve which have not been utilized by agriculturalists but which are vital in making a crop species resistant to a particular disease.

As 'rental' income flows increase and spread, more and more countries come to appreciate the real economic value of their biological resources conserved *in-situ*, and begin to address seriously the network of disincentives to conservation and sustainable use which have been built up since the earliest of colonial times (see page 16).

Now, if suitable national legislation is passed, that value can be captured by countries of origin, and hopefully distributed to those with *in-situ* conservation responsibility and those who contributed traditional knowledge exploited by others.

Countries now incorporate natural resource accounting into their budgeting process, so that sustainability of use and resource conservation are seen as economic advantages instead of obstacles to rapid 'development'. This allows them to quantify the real economic loss to the country of unsustainable resource use—loss of soil fertility, loss of wood resources, depletion of fish stocks—all of which turn up as big minuses in the national accounts, but which used to be ignored.

Alistair Graham is a consultant to the World Wide Fund for Nature on implementation of the Convention on Biological Diversity. He has been involved in the promotion and negotiation of the convention since it was first conceived. Mr Graham lives in Tasmania, Australia.

UN GENERAL ASSEMBLY ELECTS NEW UNEP GOVERNING COUNCIL

On 11 November 1993 the UN General Assembly elected 29 of its member nations to the UNEP Governing Council. This is part of a normal rotation of the 58 members of the Council. The new Governing Council members began their four-year terms on 1 January 1994.

The UNEP Governing Council normally meets every two years to address environmental policy issues, to review UNEP's performance and to agree on a programme budget for the next biennium. The next regular session of the Governing Council is scheduled for May 1995.

The new members of the Governing Council are: Argentina, Australia, Bangladesh, Bhutan, Botswana, Brazil, Bulgaria, Burundi, Cameroon, Canada, Chile, China, Colombia, Congo, Costa Rica, Cote d'Ivoire, Democratic People's Republic of Korea, Denmark, France, Gabon, Gambia, Germany, Guinea-Bissau, Guyana, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Kenya, Malaysia, Mexico, Netherlands, Nicaragua, Nigeria, Pakistan, Poland, Portugal, Republic of Korea, Rumania, Russian Federation, Rwanda, Senegal, Slovak Republic, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syria, United Kingdom, United States, Uruguay, Venezuela, Zaire, Zambia and Zimbabwe.

UNEP TRAINS NILE BASIN WATER QUALITY STAFF

Participants from six Nile Basin countries took part in a training programme on water quality monitoring at UNEP Headquarters in Nairobi, Kenya, during October. Those taking part were from all the countries with watersheds into the Nile basin: Egypt, Ethiopia, Kenya, Sudan, Tanzania and Uganda. Included in the week-long programme was training in the use of specialist computer software developed to analyse water quality.

The course is part of a programme to boost countries' abilities to monitor their water quality. The project, which began in 1991, is jointly run by UNEP and the World Health Organization, and includes the publication of a handbook dealing with all aspects of water quality monitoring. The emphasis of the course is on developing low-cost monitoring techniques. The course also involves practical work with participants using specially provided chemicals and equipment; participants then continue with field studies in their respective countries.

The process continued in the Zimbabwean capital Harare in November, with participants from the Southern African Development Community (SADC). The Nile Basin participants are next scheduled to meet in February 1994 in Entebbe, Uganda, to report on the results of their field studies.

A similar programme is also under way in South America, and all the results will be incorporated in an updated version of the handbook. This book will provide a basic guide for developing countries wishing to initiate and strengthen their water quality monitoring capacity. The handbook will be distributed by UNEP's Global Environment Monitoring System (GEMS) to affiliated research and regional development authorities in other regions.

This year, UNEP's Governing Council instructed UNEP to increase the resources it puts into helping developing countries increase their capacity to monitor and protect their environments. For further information please contact:

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MORE PROTECTION FOR THE OZONE LAYER

Moves to protect the ozone layer are beginning to show real signs of success. The rate of growth in atmospheric concentrations of CFCs 11 and 12, two of the most effective ozone-destroying gases, has begun to slow dramatically. Dr Robert Watson, co-chairperson of the Scientific Assessment Panel established to monitor the ozone layer by the Parties to the Montreal Protocol, reported to a working group meeting in Geneva in October that the slower rate of increased accumulation of these gases is a direct result of the moves taken under the Montreal Protocol to reduce the emission of ozone-depleting substances. CFCs 11 and 12 were two of the first ozone-depleting substances to be targeted for phasing out under the Protocol. Reduction has come from moves such as the elimination of CFCs in mobile air conditioning and the phasing out of ozone-depleting solvents in the electronics and aerospace industries. Encouraged by the development of alternative substances, many facilities halted production of CFCs during 1993 and more will stop production in 1994.

The most recent substances to be targeted for phasing out have been halons, widely used as propellants in fire extinguishers. They have a very high ozone-depleting potential but were not originally covered by the Protocol. A special committee was established to consider the options for the phasing out of these substances, and their report was delivered to the Geneva meeting. It concluded that there was no case to be made to prolong the production or consumption of halons beyond the agreed phase out date (*see box*). They found that current world stocks were available to meet requirements and that alternative ozone-safe alternatives were now available for most uses.

It was argued that prolonging production would retard the development of alternatives, while cutting production would increase the cost of the remaining halon plants. Some small plants will continue in operation, but their higher operating costs would make alternative substances much more competitive. Allowing larger plants to remain in operation would make alternatives less competitive. The latest ozone-depleting substance to be considered under the protocol is methyl bromide, widely used as fumigant in horticulture, but at the time of going to print no timetable for its phase out had been agreed to.

But lower rates of CFC accumulation and a rapid phase out of halons will be of no short-term benefit to the already battered ozone layer. The Geneva meeting was told of the continued alarming level of ozone depletion, with ozone levels 20 percent down on normal levels over North America and Europe during February 1993. The most recent report of the World Meteorological Organization (WMO) at the time of going to print indicated that the very low Antarctic termperatures prevailing during the 1993 southern hemisphere spring would see mean very low ozone levels over Antarctica at the end of 1993, a repeat of the sequence recorded in 1992.

Globally, ozone levels during 1992 were the lowest recorded since satellite observations of the ozone layer started in 1978, although the eruption of the Filipino volcano Mt Pinatubo is likely to have contributed to those readings. Volcanic emissions of the force of Mt Pinatubo lead to the formation of sulphuric acid in the stratosphere, which depletes the ozone layer.

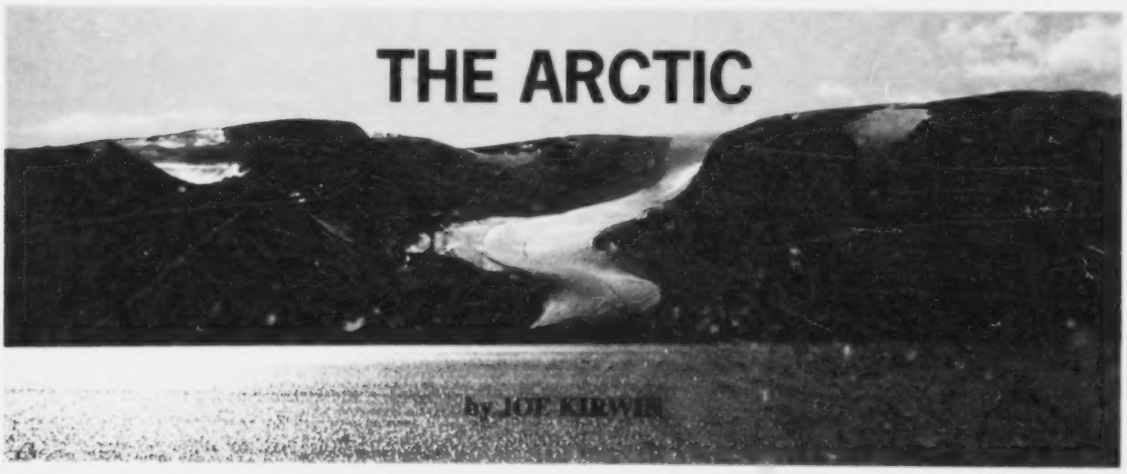
The feared outcome of ozone depletion has always been an increase in UV-B light reaching the surface of the planet. Now that fear has been realized, with correlations having been established between short-term decreases in stratospheric ozone and increased amounts of UV-B light reaching the lower atmosphere. To make matters worse, the Antarctic's so-called 'ozone hole' reached an inhabited area, southern Chile, for the first time ever during 1992, although research has not as yet identified any harmful effects attributable to that exposure. As well as increasing the risk of cancer and eye cataracts, excessive exposure to UV-B suppresses the immune system in animals—humans included—increasing vulnerability to disease and infections, and it also lower productivity in plants and simple animals. Research in Antarctica has confirmed laboratory research pointing to a 6–12 percent reduction in the primary productivity of phytoplankton during exposure to increased UV-B from the ozone hole when compared with productivity when UV-B is relatively normal.

The fifth meeting of the Parties to the Montreal Protocol was scheduled for late November 1993. Further developments will be covered in future issues of *Our Planet*.

Halon phase out

Developed countries began to phase out the production of halons on 1 January 1994. Developing countries with less than 0.3 kg annual per capita consumption of halons have a 10-year grace period, but the timing of this phase out is to be reviewed in 1995.

THE ARCTIC



by JOE KIRWIN

Along the fjords of what used to be known as Baffin Island in the eastern Arctic region of Canada's Northwest Territories, there exists one of the world's more spectacular and untouched wilderness regions. Stunning mountains of granite rise up from the rocky tundra. Glaciers that look like tongues hang over the shoulders of these mountains and, in the short span of summer, these ice fields provide a spellbinding geology lesson. The glaciers act like bulldozers, triggering huge thundering cascades of boulders from the moraine which it grinds from the sides of the fjord.

As deep into the wilderness as this region might be, there exists a frightening, yet telling, paradox not far away. Some 40 kilometres further along the fjord, in the small village of Pangnirtung, scientists have discovered life-threatening levels of polychlorinated biphenyls (PCBs) in the breast milk of the native Inuit women. PCBs are fire-retardant chemicals that do not degrade when released in the environment and are highly carcinogenic.

Normally associated with heavily industrialized areas, scientists now find that these toxic compounds have spread through the food chain in one of the furthest points from industrialization on the planet. Much of this dangerous chemical cocktail comes from the bear, seal, caribou and whale meat that is the staple of their traditional hunting and fishing lifestyle.

But the chemicals are just one example of this environmental paradox. The fragile, often-frozen Arctic region is threatened by various airborne emissions from distant sources to the south, and by pollutants—some dating back to World War II—hauled up from the south and dumped.

Span the northern sphere of the globe above the polar circle and the problems are everywhere: acidification and mercury poisoning in Canada's Northwest Territories, radioactive contamination in Siberia and an ozone hole that continues to grow. Compounding these woes are region-wide threats from overfishing, and oil and gas exploration.

Then there is the controversial role of some animal-rights activists. Many of the native Inuits in Alaska, Canada, and Greenland feel only contempt for non-governmental organizations that one would assume to be the indigenous peoples' ally. However, the anti-sealing campaigns conducted in the past decade by groups such as Greenpeace and others have wrought financial havoc. Now these native peoples fear that these campaigners will deny them the right to hunt whales.

In the past three years, a multilateral effort called the Rouvaniemi process has been under way to monitor and analyse many of the problems. It involves eight nations: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States. Programmes have been established which document a wide range of issues, from transboundary pollution, to threatened flora and fauna, and habitat protection.

Last September, the environment ministers of the eight nations, together with officials from indigenous groups such as the Inuit Circumpolar Conference, the Nordic Saami Council and the Russian Association of peoples of the North, met in Greenland to address further the Arctic environmental problems.

The two-day conference in the city of Nuuk concluded with the approval of a ministerial declaration mapping out a strategy for the next two years. Along with the declaration, Danish Environment Minister Sven Auken called on all the governments to ensure the participation of indigenous peoples. To do this, a special secretariat will be established in Denmark not only to facilitate participation, but also to document the local environmental knowledge of indigenous groups.

'Certainly this is one of the important needs of this process,' said Caleb Pungawiye, the president of the Inuit Circumpolar Council, which is based in Greenland. 'The process should be an exchange. We can certainly use the help of governments, but we can also provide valuable information accumulated through thousands of years of living in this region.'

While Pungawiye and many of the governments expressed satisfaction with the latest government decree, others were critical.

UNEP to coordinate Arctic database

UNEP is to coordinate the establishment of a storage facility for data on the Arctic environment. These data are currently widely dispersed throughout all the Arctic polar states, and are often difficult to obtain. Russia alone has 43 percent of the Arctic land mass with about 800 institutions working on projects related to the Arctic. With the disruption to the funding of public institutions in the former Soviet Union, much of this information is in danger of being lost.

To counter this danger, and to improve access to and usage of data from the United States, Canada and the Nordic countries, UNEP's Global Resource Information Database (GRID) node at Arendal in Norway will coordinate the establishment of the database. The decision was taken in September at a meeting in Arendal. The process will be guided by representatives from the Russian Environment Ministry, the United States Interagency Arctic Research Policy Committee, the Canadian Polar Commission, the Finnish Arctic Centre in Rovaniemi and the Norwegian Polar Institute.

'This was just more lip service and more questions have been produced than decisions on concrete measures to protect the Arctic environment,' said Dr Peter Prokosch, who heads the World Wide Fund for Nature's Oslo-based Arctic Programme. 'We recognize the efforts, but how much more information is needed? The time for a convention for the protection of the Arctic is now.'

'Everybody commits themselves to sustainable development in the Arctic, but who is going to define it?' Prokosch asks. 'As soon as commercial or strategic issues are touched, they are immediately excluded. When it comes to fishing rights, the subject is avoided. An attempt to make the region nuclear-free was dismissed as if it were a joke. Who is going to demand that the Russians stop dumping nuclear waste and other radioactive materials in the Arctic?'

Of all the problems in the Arctic, certainly the most acute is radioactive waste dumping in the Kara Sea island of Novaya Zemlya. Started by the former Soviet Union military, the dumping from decommissioned nuclear submarines was acknowledged recently by the Russian government. However, cooperation from the Russian military with neighbouring nations such as Norway has not exactly been forthcoming.

'The Russian environment ministry officials are very helpful and concerned, and want to do whatever possible,' said Magne Roed, a Norwegian Environment Ministry official. 'But if the military won't allow access to what we believe is the most contaminated site, there is not much that can be done.'

Because of the environmental threats the region faces, many believe a special international treaty or convention guaranteeing the protection of the region is essential. Some nations called for such a convention during a meeting in Greenland in September, but other national representatives said it was not needed.

While the issue of an overall international environment treaty is debated, various environmental groups are convinced that some international law must be adopted promptly to deal with the radioactive waste problem in the former Soviet Union.

'This is a disaster waiting to happen,' said Thomas Nilsson, a representative of the Norwegian environmental group Bellona. 'It is essential that the United States steps in and helps the Russians in a joint venture. The United States has the technology to decommission nuclear submarines. Right now there are more than 50 submarines waiting to be decommissioned, and the storage capacity for the used fuel rods is overloaded.'

It is this kind of problem, and others, that make native Inuits such as Tove Petersen frightened. 'We are starting to realize the problems,' said Petersen, who works with the Greenland Home Rule office. 'We might never see a smokestack or a submarine in our lives, but now we know that the problems from them are not far away. In fact, they are now right in our own backyard.'

Inuit women (left) have life-threatening concentrations of PCBs in their breast milk, partly as a result of the traditional diet of meat from whales and seals (right) contaminated by toxic chemicals.